

longing to the historic and prehistoric ages, including a Romano-British enamelled bronze brooch, of the same pattern as one found in the Victoria Cave, fragments of pottery, human bones and teeth, and bones of both wild and domestic animals.

The distribution of the remains found in the Church Hole Cave agreed generally with that above described; traces of human occupation and remains of the Hyæna occurred both in the cave-earth and in the red sand and clay. The bones found indicated the following animals:—Lion, Polceat, Hyæna, Fox, Wolf, Bear, Reindeer, Irish Elk, Bison, Horse, Woolly Rhinoceros, Mammoth, and Hare—all common to both the cave-deposits, except the Lion, which was found only in the cave-earth, and the Polceat, of which a single jaw occurred in the red sand. The latter contained a larger proportion of the remains than in the Robin-Hood Cave; but, as in the latter, the quartzite implements were more abundant in the lower strata of the deposits. Among the articles of human workmanship was a perfect and well-shaped bone needle. The superficial soil of the Church Hole Cave also contained articles of the historic and prehistoric age, including a bronze fibula, fragments of pottery (one mediæval), and bones of man and animals. From the presence of these objects in the surface-soil the author inferred that the caves of Creswell Crags, like those of Yorkshire and elsewhere, were used as places of refuge by the Brit-welsh during the conquest of the country by the English.

After noticing the conditions of the fossil bones found in the caves, the author proceeded to remark upon the general results of the explorations with regard to their Pleistocene fauna, and concluded that there is no evidence from these or other caves in this country to prove that their faunas are either pre- or interglacial, and that we have no proof of the existence of pre- or interglacial man in Britain.

MISCELLANEOUS.

On the Migrations and Metamorphoses of the Tapeworms of the Shrews. By M. A. VILLOT.

DUJARDIN discovered and described several species of tapeworms inhabiting the intestines of the shrews: thus *Tænia scutigera* lives in *Sorex tetragonurus*; while the little *Sorex araneus* harbours three species, namely *T. scalaris*, *tiara*, and *pistillum*. Dujardin was acquainted with the various stages of the development of these species, except the place and manner of the passage from the proscœlex to the scolex, a gap in our knowledge of their history which M. Villot has filled up by the discovery that this change takes place in *Glomeris*, and that the cystic parasite described by him last year under the name of *Staphylocystis biliarius* represents this stage in the development of a species very near to *T. scutigera* and *T. scalaris*, which, moreover, are very closely allied. In these two species, according to M. Villot, the hooks are of the same form and dimen-

sions, measuring from 0·033 to 0·040 millim. Their number is ten in *T. scutigera*, twelve in *T. scalaris*. *Staphylocystis biliarius* usually has fourteen hooks, which also attain a length of 0·040 millim. The difference in number is so small that it may be a question whether Dujardin did not observe individuals of a single species which had lost more or less of their hooks. M. Villot unhesitatingly refers his *Staphylocystis micracanthus* to *Tenia pistillum*. He sums up his results as follows:—

It is now easy, taking into consideration the habits of their successive hosts, to summarize the history of these parasites. The proglottids, adult individuals, loaded with ova and embryos, detach themselves from the strobile and escape from the intestine of the shrew along with the excrements; then the embryos pierce the envelopes, and, having got free, wait patiently in the moist ground on which they have been deposited for the moment when they can introduce themselves into the body of the *Glomeris*. Their migration must, in the first place, be purely passive; for we cannot otherwise understand the important fact that the *Staphylocysts* are always attached to the Malpighian tubes. They probably pass into the stomachs of their hosts along with the half-decomposed vegetable débris upon which the latter feed. At the entrance of the intestines the embryos may get into the biliary vessels. travel through these for some time, and then traverse their walls, to take up their abode in the adipose tissue which surrounds those organs. Arrived at their dwelling-place they lose their hooks, which have now become useless, pass into the vesicular state, proliferate, and become scoleces. A shrew meeting with an infested *Glomeris* will devour it as readily as another, introducing into its own stomach at once a hundred scoleces, which on arriving in the intestine of the insectivore will attach themselves, and in their turn bud and form strobiles. The proglottids of the latter will acquire genital organs, and give birth to a new generation.—*Comptes Rendus*, November 19, 1877, p. 971.

On some Monstrosities of Asteracanthion rubens. By M. A. GIARD.

On the beach at Wimereux, where the common starfish (*Asteracanthion rubens*) is excessively abundant, especially during the winter and spring months, we find pretty frequently among these animals various interesting monstrosities. Thus we may every year obtain many individuals possessing six rays, instead of five, the normal number.

As the number of rays varies in the group *Asteriadae* in allied species, and sometimes even in a particular species, it was natural to see in these aberrations either a simple case of *polymelism*, or a numerical variation in the constitution of the *cœnobium*, according as one gave to each ray of a starfish the value of a member or that of an individual.

There is no doubt that a good many of the six-rayed *Asteracanthions* are really monstrosities of this kind. In fact we find, from time to time, specimens in which one ray is bifurcated about the